# Section 13
# Non-Emergency Fire Fighting Component

## 13.0 Overview

The City of Carlsbad has developed the Non-Emergency Fire Fighting Component to meet Prohibitions – Non-Storm Water Discharges for Fire Fighting Flows in Section B.4 of the Permit. This section discusses Permit requirements that apply to the *Non-Emergency Fire Fighting Component* of the Jurisdictional Urban Runoff Management Plan (JURMP) and the methodologies to be employed. This section meets or exceeds minimum requirements as specified in Section B.4 of the Permit.

Subsections 13.1 and 13.2 briefly summarizes the purpose of the subsection, quotes the applicable regulatory requirements from Sections B.4 and H of the Permit (*italicized*), and lists the City's action plan. The rest of the subsection outlines each action and describes the specific actions that have been completed, are in progress, or are projected due to capital improvement purchases by the City of Carlsbad to meet or exceed that Permit requirement.

The City of Carlsbad has reviewed the Fire Districts URMP (Model Guidance) dated December 18, 2001, when designing this component. The subsections in the Non-Emergency Fire Fighting Component describe the City's Action Plan to meet compliance with the Permit.

# 13.1 Introduction

### Emergency Duration Definition:

The Mission of the Fire Department is the protection of life, property and the environment. An emergency exists from alarm notification until, in the opinion of the incident commander, the emergency has concluded and equipment is returned to service.

### Vision:

Run-off releases should be avoided, whenever possible, but should not impede necessary and appropriate actions to fulfill the Mission of the Fire Department.

### Introduction to Fire Activities

The Fire Department staff realizes the importance of protecting water quality throughout the San Diego County Region. The Storm Water Protection Program will assist the City's Fire Department in complying with the requirements set forth in the San Diego Municipal NPDES Permit, Order 2001-01. Compliance with the program, should not compromise the Mission of the Fire Department.

This program outlines best management practices (BMPs) that, if properly implemented, should effectively reduce or eliminate the migration of runoff into the municipal separate storm sewer system (MS4). Structural and non-structural BMPs provide the best use of resources for training, scheduling, and reducing runoff into the MS4.

The Permit has few exemptions. Section B. Prohibitions specifically states that "*Fire Fighting Flows: Emergency fire fighting flows (i.e., flows necessary for the protection of life or property) do not require BMPs and need not be prohibited."* An emergency exists from alarm notification until the incident commander resolves that the emergency has been concluded. Carlsbad Fire Department personnel will use "Best Professional Judgment," to determine the appropriateness of eliciting assistance from the Public Works Department to exercise preventive measures. Preventive measures during a fire-fighting emergency may be limited by a number of factors beyond the incident commander's control. Some of these factors may include safety of personnel, terrain, priorities at the scene, and public safety. At the discretion of the incident commander, Public Works staff will take measures to prevent, direct, or mitigate fire-fighting runoff from entering the MS4. Once an emergency has concluded, the incident commander will exercise reasonable judgment in implementing BMPs to continue these measures or initiate actions to prevent runoff to the MS4. The incident commander will determine appropriate actions for post-emergency situation**.**

## 13.1.1 Purpose and Permit Requirements

**Purpose**

The purpose of this Permit requirement is to prevent, reduce, or mitigate pollutants from entering the storm drain system to the maximum extent practicable from non-emergency fire fighting activities.

**NPDES Permit Order No. 2001- 01 Requirement(s)**

**The Permit requirement under the Non-Emergency Fire Fighting Component is as follows:**
**Section B.4**
*Copermittee shall develop and implement a program within 365 days of adoption of this Order to reduce pollutants from non-emergency fire fighting flows (i.e., flows from controlled or practice blazes and maintenance activities) identified by the Copermittee to be significant sources of pollutants to waters of the United States.*

**Jurisdictional URMP Requirements**

**The Permit requirement under the Non-Emergency Fire Fighting Component is as follows:**
**Section H.1.a.(12)(a)**
*A description of the program to reduce pollutants from non-emergency fire fighting flows identified by the Copermittee to be significant sources of pollutants.*

**City Action Plan**

1) Fire Prevention Program as a Best Management Practice
2) Best Management Practices for Existing Facilities
3) Best Management Practices for Post-Emergency Activities
4) Best Management Practices for Future Facilities
5) Fire Department Staff Training

## 13.1.2 Action Plan

### Action #1 - Fire Prevention Program as a Best Management Practice

Fire prevention is itself a Best Management Practice (BMP). Fire Prevention activities include those activities not directly associated with emergency scene operations, post fire scene or mop-up operations that may involve manipulation of fire department appliances that generate water flows such as fire hydrant and fire sprinkler system testing.

Perhaps the most effective way to eliminate water runoff from fires is to eliminate or reduce the magnitude of fires. The fire department has shown that an aggressive fire prevention program has a significant impact on the number and magnitude of fires. Procedures or actions that lead to early fire detection/notification, automatic suppression, confinement, or enhanced suppression capabilities can reduce or control fires and ultimately reduce water runoff. The installation and maintenance of these procedures, devices, or features can significantly reduce potential flows in the event of an emergency.

**Rationale:**

The use of a fire sprinkler system is a pre-emptive, water saving measure when compared to the high volumes of water required to suppress a structural fire. For example, the Uniform Fire Code Table III-A (minimum required fire flow and flow duration for buildings) calls for a fire flow of 2,700 gallons per minute for a duration of two hours or 330,000 gallons to suppress a fire in a 10,000 square foot wood frame building.

Fire sprinkler systems are routinely tested on an annual basis. This test would include flowing inspectors test and perhaps the main drain. Inspectors test to flow 30 gallons per minute for less than 90 seconds or a total of 45 gallons. To evaluate the capacity of the supply a main drain follow of 30 seconds would be conducted flowing 190 gallons. This annual service test could flow as much as 235 gallons, a significant water conservation savings. Utilizing smaller volume flows at a scheduled time, as opposed to the high volume during an emergency response, helps to conserve water and reduce runoff.

**Activities:**

There are three areas within fire prevention that impact stormwater flows. This includes fire sprinkler acceptance and testing, fire hydrant testing, and weed abatement activities. Those activities that reduce the possibility or magnitude of fires can significantly reduce the sources of pollutants and reduce the possibility of greater flows in the event of an emergency.

**Best Management Practices:**

The following BMPs may additionally reduce the potential of a flow into a receiving water body.

Fire Sprinkler acceptance and testing will be:

- Conducted on non-rainy days thus heightening evaporation, whenever possible.
- Conduct flows for the shortest duration possible.
- Clear debris from areas where water flows may create runoff into the conveyance system and/or receiving water bodies prior to initiating activities.
- Contain flows onsite whenever possible.
- Use dechlorination when practical.

**Fire Hydrant Testing will be:**

- Conducted infrequently, as a sample per area zones, as needed.
- Using dechlorination as a BMP.
- As needed for visible leaks or concerns.
- Conducted on non-rainy days when ever possible.
- Conducted for flows of the shortest duration possible.
- Flows should be diverted to sewer, if possible, for areas that may pose a higher threat to water quality.
- Debris will be cleared from the conveyance prior to creating flows.
- Flows not diverted to sewer should be diverted to landscaped areas.

**Weed abatement:**

- As a practice mowing will be encouraged.
- When mowing is not practical for perimeter breaks, roughing the slope in a manner that would not increase soil or sediment releases will be utilized, such as disking.
- Topography must be taken into account when selecting the method employed.

## Action #2 - Best Management Practices for Existing Facilities

**Vehicle and Equipment Washing and Cleaning**

The City's approach to preventing and reducing pollutant discharges from vehicle and equipment washing and cleaning uses has both short and long-term solutions. In the short-term, both low cost structural and permanent non-structural BMPs will be used. Long-term solutions that may include high cost capital improvements may be planned where low cost structural and permanent non-structural BMPs do not accomplish pollutant discharge reductions to the Maximum Extent Practicable.

For example, low cost structural BMPs may include installing storm drain inlet inserts that trap or remove the pollutants of concern and/or reducing the frequency and duration of vehicle and equipment washing and cleaning activities that produce the pollutants or discharges. A long-term capital improvement project may be considered, such as connecting permanent wash racks to the sanitary sewer, if the above short-term use of BMPs does not accomplished the goal.

The following BMPs are adapted from the Model Guidance with the following taken into consideration:

1. Steam cleaning and vehicle repair is performed at the City's Fleet Maintenance Facility;
2. All Fire Stations are listed in the Municipal Component (Section 2) of this JURMP and will be inspected under that program;
3. All Fire Stations are connected to the sanitary sewer, septic system recommendations have been deleted;
4. This BMPs are considered a "menu" of applicable BMPs that may be used in part or as a whole at a variety of Fire Department facilities to accomplish the Permit requirements as listed in Section 2.1.1, and "Purpose and Permit Requirements".

BMPs to be considered in order to prevent or reduce the discharge of pollutants to storm water from vehicle and equipment washing and cleaning (Industrial Handbook BMP SC3) include:

- Any area or facility used for washing and/or cleaning vehicles and equipment must be designed so that wash water and other debris does not enter the storm water conveyance or receiving water, unless adequate treatment is in place.
- A wash area may be created in a manner that allows all wash water to percolate through plant material, the landscape, or evaporate completely. Wash water should be prevented from entering storm drains, waterway drainages, or escaping from the property.
- Consider off-site commercial washing and steam cleaning facilities, that are properly implementing BMPs, whenever possible.
- Use of Fleet Maintenance facilities is regarded as the best choice for these practices.
- Discharge foam from flushing or pump testing to sanitary sewer after application of defoaming agent.
- Use designated wash areas (preferably covered and bermed) to prevent contact with storm water and to contain wash water.
- Discharge wash water to a sanitary sewer.
- Consider constructing a holding basin for the wash water, if a sewer is not available (liquid must be disposed of properly).
- Educate employees on pollution prevention measures.
- Do not permit steam cleaning at Fire Station locations.
- Clean up of wash area must be accomplished in the same manner: Discharge must not enter the storm drain. Utilize wet mop cleaning of small areas when available.

**Considerations:**

- Utilize methods of cleaning vehicles that employ the minimal use of water, such as wet chamois or non-water rinses, when applicable.
- Consider the use of a "wet-vac" to pick up wash water and dispose of it to a sewer.
- Use biodegradable cleaning agents in infiltration areas being absorbed into landscaped areas or soil.
- Wet mopping may be the best means of clean-up for cleaning chemicals used on soiled walls and floors of a work area. However, it may be necessary to dispose of soiled mops or rags in a safety can or other appropriate means if they have been used with hazardous cleaning agents that could impact water quality.

**Solid and Hazardous Waste Storage Areas**

- Solid and hazardous waste storage areas should be protected from storm water by a canopy or roof with secondary containment.
- If a canopy is not feasible then the area should be surrounded by asphalt pavement and properly maintained.
- Keep all trash and solid waste receptacle lids closed to prevent rain from entering and leaking into the storm drain.

**Vehicle Fueling: Fixed Facilities**

The Fire Department uses the City's Fleet Maintenance facility for fueling vehicles. The BMPs listed below, are applicable at the Fleet Maintenance facility and included for the purpose of training the Fire Department staff. The fueling facility BMPs are covered in the Municipal Component of this JURMP.

Prevent fuel spills and leaks, and reduce their impacts to storm water. (Industrial Handbook BMP SC2)

- Protect the fueling area from storm water by installing a canopy.
- If a canopy is not feasible and the fuel island/pump is surrounded by asphalt pavement, a suitable sealant that protects the asphalt from spilled fuels should be applied.
- If a perimeter drain surrounds an area, the drain should be clear of debris at all times.
- Where a perimeter drain is not installed, a berm should be utilized to prevent run-on of storm water and spilled liquids.
- Use a dead-end sump to collect spills or install an oil-water separator.
- Utilize vapor recovery nozzles to help control drips as well as air pollution.
- Discourage "topping-off" of fuel tanks.
- Use secondary containment when transferring fuel from the delivery vehicle to the storage vessel.
- Have a spill control kit available at the site. Use absorbent materials on small spills and general cleaning rather than hosing down an area. Remove the absorbent materials promptly and dispose of appropriately.
- Implement all Federal and State requirements regarding the storage and handling of fuels.
- Keep your "Spill Prevention Control and Countermeasure (SPCC) Plan" current.
- Train employees in the proper fueling and cleanup procedures.
- Discourage the practice of "mobile fueling" if the vehicles and/or equipment can be brought to the refueling facility. However, during sustained fire operations mobile fueling may be necessary.
- Make sure vehicles are refueled on surfaces made of concrete or other impervious surfaces.

**Considerations:**

- Oil/water separators are only as effective as their maintenance program.
- Consider using a permitted off-site fueling facility.

**Vehicle Fueling: Mobile**

- Avoid "topping off" tanks while fueling in the field.
- Keep spill control and containment equipment available for use.
- Train employees on mobile fueling procedures.

**Vehicle and Equipment Maintenance and Repair**

The Fire Department uses the City's Fleet Maintenance facility for maintenance and repair of vehicles and equipment. The BMPs listed below, are applicable at that facility and included here for the purpose of training Fire Department staff. The maintenance and repair BMPs are covered in the Municipal Component of this JURMP.

Prevent or reduce the discharge of pollutants to storm water from vehicle and equipment maintenance and repair by running a dry shop. (Industrial Handbook BMP SC4)

- Vehicle and equipment maintenance shall be conducted in areas where precautions have been taken to prevent the entry of spills into the stormwater conveyance system or receiving water.
- Only dry cleaning methods shall be used in maintenance and repair areas unless adequate precautions have been taken to prevent the discharge of wash water to the stormwater conveyance or receiving water.

**Hose Washing and Cleaning**

Prevent or reduce the discharge of pollutants to storm water from fire hose and equipment washing and cleaning. (Industrial Handbook BMP SC3)

- Any area or facility used for the washing and/or cleaning of fire hose must be designed so that wash water or other debris does not enter the storm water conveyance or receiving water, unless adequate treatment is in place.
- The BMPs listed below do not include the use of chemical cleaning agents, since it is not part of the practices by the Carlsbad Fire Department when cleaning hoses.
- Educate employees on the pollution prevention measures, listed below, to be used when repairing or maintaining vehicles and equipment (minimize water use, pre-clean in landscaped area, etc.)

**Considerations:**

- A wash area may be created in a manner that allows all water to percolate through plant material, the landscape, or evaporate completely as long as wash water does not enter storm drains, waterway drainages, or escapes from the property.
- If available, use designated wash areas (preferably covered and bermed) to prevent contact with storm water and to contain wash water.
- Discharge wash water to sanitary sewer.
- Do not permit wash water containing detergents, degreasers, or other contaminants to enter storm drain.
- When cleaning the area prevent discharge from entering the storm drain. Utilize wet mop cleaning methods in small areas, when available.
- Utilize methods of cleaning fire hoses that employ the minimal use of water, such as high-pressure spray washers when applicable.
- Consider the use of a "wet-vac" to pick up wash water and dispose of in a sewer.
- Consider the use of biodegradable cleaning agents.
- When washing hoses indoors, consider the effects that a wet environment will have on walls, windows, ceilings and other surfaces. Protect exposed equipment and porous surfaces.

**Facility Maintenance: Landscaping and Buildings.**

The Municipal Component of this JURMP includes BMPs for landscaping and associated activities as part of sections: "Best Management Practices Implementation" (Section 2.4) and "Management of Pesticides, Herbicides and Fertilizers" (Section 2.6.). Please refer to them for details.

**<u>Action #3</u> - Best Management Practices for Post-Emergency Activities**

**Post-Emergency Activities**

Once the emergency has concluded, the incident commander should exercise reasonable judgment and actions to prevent runoff from entering the MS4. First respondents may act upon direction of the emergency incident commander to initiate reasonable efforts to contact the proper, responsible parties to avoid or mitigate environmental consequences.

**<u>Action #4</u> - Best Management Practices for Future Facilities**

**BMP Practices for Planning Future Fire Stations**

**Purposes and Objective:**

- Identify pollutant sources that may affect the quality of discharges of storm water associated with the planning of future fire station facilities.
- Identify, construct, and implement storm water pollution control measures to reduce pollutants in storm water discharges from Fire Station facilities.

The standards for new facilities will be determined by a number of factors that are listed in the Land-Use Planning for New Development and Redevelopment Component (Section 6) and Construction Component (Section 7).

The details are referred to those sections and other policies that may be in place at the time that such facilities are planned, built, and utilized. In general, the list that follows is included only as a sample of considerations. General concepts when constructing a new facility may include:

- Pavers rather than blacktop or concrete
- Use of drywells or percolation sumps
- Use of brick turf pavers on lawn areas to accommodate vehicles
- Use of sumps and areas to recycle water
- Direct hard surface flows to landscape areas or percolations areas
- Direct hard surface flows to clarifiers
- Use treatment devices on storm drain inlets
- Promote water conservation and then use of drought tolerant plants
- Covered and enclosed areas for solid waste and trash.

## 13.2 Education and Outreach

**Purpose**

The purpose of this Permit requirement is to educate this target audience on topics aimed at preventing or reducing pollutants from entering the storm drain system.

**NPDES Permit Order No. 2001- 01 Requirement(s)**

**The Permit requirement under the Education Component is as follows:**
**Section F.4.a.**
*At a minimum the Education Program for each target audience shall contain information on the following topics where applicable:*

- *State and Federal water quality laws*
- *Requirements of local municipal permits and ordinances (e.g., storm water and grading ordinances and permits)*
- *Impacts of urban runoff on receiving waters*
- *Watershed concepts (i.e., stewardship, connection between inland activities and coastal problems, etc.)*
- *Distinction between MS4s and sanitary sewers*
- *Importance of good housekeeping (e.g., sweeping impervious surfaces instead of hosing)*
- *Pollution prevention and safe alternatives*
- *Household hazardous waste collection*
- *Recycling*
- *BMPs: Site specific, structural and source control*
- *BMP maintenance*
- *Non-storm water disposal alternatives (e.g., all wash waters)*
- *Pet and animal waste disposal*
- *Proper solid waste disposal (e.g., garbage, tires, appliances, furniture, vehicles)*
- *Equipment and vehicle maintenance and repair*
- *Public reporting mechanisms*
- *Green waste disposal*
- *Integrated pest management*
- *Native vegetation*
- *Proper disposal of boat and recreational vehicle waste*
- *Traffic reduction, alternative fuel use*
- *Water conservation*

**Section F.4.b.**
*In addition to the topics listed in F.4.a. above, the Municipal, Construction, Industrial, Commercial, and Quasi-Governmental (Educational Institutions, Water Districts, Sanitation Districts) Communities shall also be educated on the following topics where applicable:*

- *Basic urban runoff training for all personnel*
- *Additional urban runoff training for appropriate personnel*
- *Illicit Discharge Detection and Elimination observations and follow-up during daily work activities*
- *Lawful disposal of catchbasin and other MS4 cleanout wastes*

- *Water quality awareness for Emergency/First Responders*
- *California™s Statewide General NPDES Permit for Storm Water Discharges*
- *Associated with Industrial Activities (Except Construction).*
- *California™s Statewide General NPDES Permit for Storm Water Discharges*
- *Associated with Construction Activities*
- *SDRWQCB™s General NPDES Permit for Groundwater Dewatering*
- *401 Water Quality Certification by the SDRWQCB*
- *Statewide General NPDES Utility Vault Permit (NPDES No. CAG990002)*
- *SDRWQCB Waste Discharge Requirements for Dredging Activities*
- *Local requirements beyond statewide general permits*
- *Federal, state and local water quality regulations that affect development projects*
- *Water quality impacts associated with land development*
- *Alternative materials & designs to maintain peak runoff values*
- *How to conduct a storm water inspection*
- *Potable water discharges to the MS4*
- *Dechlorination techniques*
- *Hydrostatic testing*
- *Spill response, containment, & recovery*
- *Preventive maintenance*
- *How to do your job and protect water quality*

## Jurisdictional URMP Requirements

**The Permit requirement under the Education Component for all Targeted Communities is as follows:**

**Section H.a.(6)**
*A description of the content, form, and frequency of education efforts for each target community.*

## City Action Plan

1) Conduct initial informational training for all Fire Department staff, both permanent and temporary, to cover general storm water runoff topics and permit requirements.
2) Develop a training program for City of Carlsbad Fire Department staff on the requirements of the urban runoff management program as it applies to the specific job duties for each job classification.
3) Distribute informational literature to employees.
4) Publish informational bulletins in newsletters, announcements and other materials readily available to employees.
5) Maintain the City's Internet website to provide employees with additional resources.

## 13.2.2 Action Plan

**<u>Action #1</u> - Conduct initial informational training for all Fire Department staff, both permanent and temporary, to cover general storm water runoff topics and permit requirements.**

The City's Environmental Section, which is responsible for implementation of the Storm Water Protection Program, initiated informational training on May 22, 2001, as part of an outreach effort to inform City employees of the new requirements in the Municipal Storm Water Permit (Order No. 2001-01). Also, the City established the Storm Water Protection – Outreach Team in July 2001 to develop internal and external outreach and education materials to meet compliance with the Permit.

The Storm Water Protection – Outreach Team is comprised of members from the Public Works Department including Administration, Engineering Services, Operations and Maintenance, and Environmental. This diverse team is responsible for all outreach, educational programs, and training.

Outreach efforts have been conducted using a Power Point presentation prepared by City staff. Presentations have been made at a variety of regularly scheduled staff meetings, as well as, specially scheduled meetings to increase attendance. The Environmental staff has trained 302 employees, through January 2002, which is approximately 32 percent of the City's workforce. A variety of departments have attended these training sessions including Public Works, Administrative Services, Planning, and the City Manager's Office.

Informational training to cover general storm water runoff topics and permit requirements is planned as a continuous effort and will include direct training, such as described above. Other methods to provide training are described in this Action Plan.

New employees will be trained on storm water runoff as part of their general introduction to City government operations and services. Several methods are being considered to accomplish this, including: Storm Water Briefing during "*Experience Carlsbad*" – a day-long introductory program sponsored by the Human Resources Department for all new permanent employees.

General informational training is targeted at 70 percent of all City staff by the end of the first reporting period from July 2001 through June 2002. The City is well underway to meet this audience target with 32 percent completed as of January 2002.

**<u>Action #2</u> - Develop a training program for City of Carlsbad Fire Department staff on the requirements of the urban runoff management program as it applies to the specific job duties for each job classification.**

The objectives of the City's employee training program are:

- Promote a clear identification and understanding of the urban runoff and water quality issues, including activities that potentially pollute receiving water bodies;
- Identify and implement strategies for BMPs;
- Promote employees ownership of the problems and their ability to apply solutions; and
- Integrate employee's feedback into training and BMP implementation.

Job specific training is targeted at 50 percent of applicable City staff by the end of the first reporting year (July 1, 2001-June 30, 2002) on January 31, 2003, 80 percent for the second year, and 90 percent for subsequent years is projected. The 90 percent target allows flexibility to train and introduce new and

promoted employees to the BMPs or modified procedures during the course of the reporting year. If modifications are incorporated late in the reporting year, then training will be planned for the following year.

Training activities for fire department staff include classroom as well as field training. Classroom training for stormwater prevention will be incorporated into existing training programs. Field training activities have been previously described.

**Fire Department BMPs to protect Stormwater/Urban Runoff during Training Activities**

Education is the foundation of any successful Urban Runoff Management Plan. It is imperative that fire department staff know and understand how fire activities may impact water quality. Training will include information on how to accomplish an activity while protecting water quality and their specific responsibilities for compliance with the Permit.

Training will be integrated into existing training programs for safety and other continuing education programs within the Fire Department (as appropriate).

**Training on Specific BMPs include:**

**Vehicle and Equipment Fueling:**

- Train employees in proper fueling and cleanup procedures.
- Maintain a current copy of the SPCC plan for an effective program to reduce the number of accidental spills. Review the plan with employees.
- Post instructions for fueling and spill clean up near the fueling areas.

**Vehicle and Equipment Washing and Steam Cleaning:**

- Train employees in standard operating procedures and clean up techniques.
- Review containment procedures for wash water and disposal to the sewer system.

**Vehicle Maintenance and Repair:**

- Train employees in standard operating procedures and clean up techniques.
- Minimize or avoid vehicle maintenance and repair at Fire Stations.

**Building and Grounds Maintenance:**

- Instruct staff on the dry approach of clean up on paved surfaces. Sweep rather than hosing down areas with water.
- Refer major building and ground maintenance to Public Works staff when in doubt about the appropriate procedures.
- Train all personnel who use pesticides on the appropriate use, storage, and disposal of these chemicals. This training should including:

- Use of integrated pest management (IPM) techniques. These techniques reduce and may eliminate the use of pesticides.
- Information, in writing, on the guidelines and procedures for use of pesticides and fertilizers relevant to the facility. This would help staff to understand the requirements of the program and the facility.

**Solid Waste Management:**

- Instruct employees and subcontractors on identification of solid waste and hazardous waste.
- Educate employees on solid waste storage and disposal procedures.
- Incorporate solid waste management into the regular safety meetings.
- Require employees to follow solid waste handling and storage procedures.

**Hazardous Waste Management:**

- Educate employees on hazardous waste storage and disposal procedures.
- Educate employees on the potential dangers of hazardous waste to humans and the environment.
- Instruct employees on safety procedures for common hazards associated with agencies activities.
- Instruct employees in the identification of hazardous waste.
- Ensure that hazardous waste is collected, removed, and disposed of properly.

**Fire Ground Training**

Training activities, which simulate emergency responses, will be performed in a manner that reduces or prevents discharges to the storm water systems whenever practicable. In addition, when the elimination of discharges into the storm water system is unavoidable (i.e., equipment failures), measures will be implemented to minimize impacts to water quality. The preferred location for these activities is the Calaveras Treatment Plant (inactive site), which has facilities for containment. The Calaveras Treatment Plant may be modified to accommodate activities not currently possible because of its configuration as a wastewater treatment plant.

**Training on Specific BMPs include:**

- Water flows should be directed to landscaped areas, whenever possible.
- When water flows to a landscaped area does not prevent runoff, the area shall be surveyed by an officer in charge, prior to training activities, to ensure that debris does not enter the storm water system as a result of the drill.
- Foam discharges should use a defoaming agent prior to discharge to the sanitary sewer system.
- Live fire training activities will be pre-planned to allow integration of structural BMPs to control runoff. Run-off from live fire training activities may not be discharged to the stormwater conveyance system or receiving waters.
- Use fog streams for short durations while moving the stream.
- Use lower gallon per minute (GPM) nozzle settings.
- When practical use shorter supply lines.

**Considerations:**

The above BMPs will need to consider these conditions in order to be feasible:

- Care should be taken to compare the ratio of flow to landscaped area.
- Training activities (water flowing), whenever possible, should be conducted on non-rainy days.
- Consideration should be made for water conservation (guidelines for time versus gallon per minute flows) whenever possible.
- Diversion/diking should be included in the exercises to allow evaporation, whenever possible.
- Consideration should be made to utilize techniques for velocity reduction (energy dissipaters) when possible.
- Techniques for sediment control should be incorporated in training whenever possible.

Note: Implementation of these BMPs may require re-evaluation of the techniques and methods of conducting drills and may need additional time to properly develop. The utilization of existing equipment on apparatus to ensure compliance with the practice is key.

**Action #3 - Distribute informational literature to employees**

BMP booklets, fact sheets and other materials prepared for public dissemination is made available to City staff prior to general distribution. Employees generally receive storm water protection BMP booklets or other relevant fact sheets with paycheck distribution. Every BMP booklet, fact sheet or other printed materials available for distribution by the Storm Water Protection Program will be distributed to City employees in this manner.
A total of 1,900 BMP booklets titled "*Motor Oil*" and "*Car Washing*" were distributed to City staff between July 1, 2001, and December 30, 2001. In addition, 22,000 copies of the "*Motor Oil*" BMP booklets were mailed to City of Carlsbad residents as an insert with the November 2001 water bill. The Program plans to design and distribute at least four additional BMP booklets for topics such as "*Pet Waste*", "*Lawn and Garden Care*", "*Auto Repair*" and "*Impervious Surface Cleaning"*

City employees and residents are continuously reminded, through these efforts, about the Storm Water HOT Line phone number and webpage, so that the information is readily available. Additional materials may become available as cooperative efforts at the Watershed and regional level are expanded.

**Action #4 - Publish informational bulletins in newsletters and other materials readily available to employees.**

Storm water runoff information and BMPs are published in City departmental newsletters and promotional items distributed during training sessions. Information also appears on lunchroom bulletin boards and in other common areas. This information always includes the City's HOT Line phone number, website, web email address, and other pertinent contact information.

**Action #5 - Maintain the City's Internet website to provide employees with additional resources.**

In December 2001, the City introduced a new website dedicated specifically to the Storm Water Protection Program. The new and innovative website includes information employees and the public can access through Internet and intranet browsers (employees only). The website includes all existing, published BMP booklets and information on booklets proposed or under development by the Storm Water Protection Program. All materials are properly formatted and can be easily downloaded by most personal computer users
The Internet web site will be expanded to include other educational materials including brochures, fact sheets, and procedures applicable to Storm Water Protection in Carlsbad. The Storm Water Protection Outreach

Team, in coordination with the City's Information Technology Department, is responsible for developing, maintaining, and keeping information current.

The City plans to make all BMP brochures and other fact sheets readily available on the Internet web site shortly after final approval by the Outreach Team.